

552,021

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
14 October 2004 (14.10.2004)

PCT

(10) International Publication Number  
**WO 2004/087573 A1**

(51) International Patent Classification<sup>7</sup>: **C01B 39/02,**  
39/46

(21) International Application Number:  
**PCT/AU2004/000428**

(22) International Filing Date: **2 April 2004 (02.04.2004)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:  
2003901594 **4 April 2003 (04.04.2003) AU**

(71) Applicant (for all designated States except US):  
**NANOCHEM HOLDINGS PTY LTD [AU/AU];**  
Level 6 Gehrman Laboratories, Research Road, Univer-  
sity of Queensland, St Lucia, QLD 4070 (AU).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MACKINNON,**  
Ian [AU/AU]; c/- Level 6 Gehrman Laboratories, Re-  
search Road, University of Queensland, St Lucia, QLD  
4000 (AU). **MILLAR, Graeme [GB/AU];** c/- Level 6

Gehrman Laboratories, Research Road, University of  
Queensland, St Lucia, QLD 4070 (AU). **STOLZ, Wanda**  
[AU/AU]; c/- Level 6 Gehrman Laboratories, Research  
Road, University of Queensland, St Lucia, QLD 4070  
(AU).

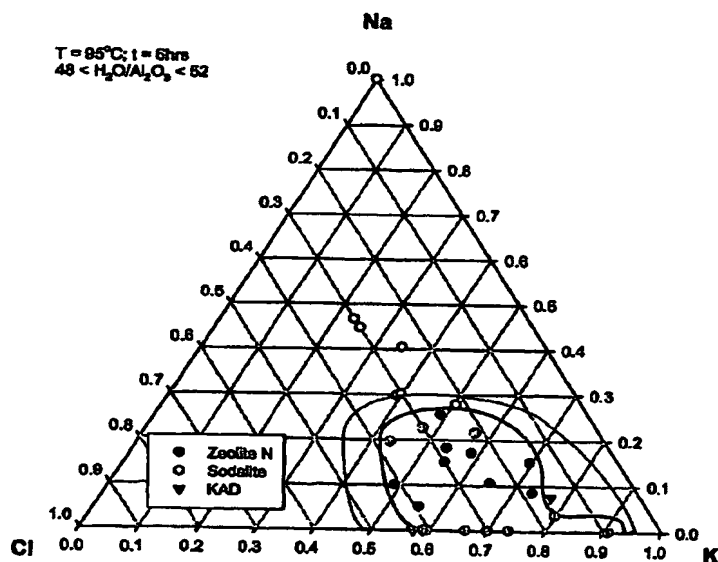
(74) Agent: **FISHER ADAMS KELLY;** Level 13 AMP Place,  
10 Eagle Street, Brisbane, QLD 4000 (AU).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-  
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,

[Continued on next page]

(54) Title: **ALUMINOSILICATES OF ZEOLITE N STRUCTURE**



(57) Abstract: A process for making aluminosilicates of zeolite N structure comprising the steps of: (i) combining a water soluble monovalent cation, a solution of hydroxyl anions and an aluminosilicate to form a resultant mixture having a pH greater than 10 and a  $H_2O/Al_2O_3$  ratio in the range 30 to 220; (ii) heating the resultant mixture to a temperature of between 50°C and the boiling point of the mixture for a time between 1 minute and 100 hours until a crystalline product of zeolite N structure is formed as determined by X-ray diffraction or other suitable characteristic; and (iii) separating the zeolite N product as a solid from the mixture.

BEST AVAILABLE COPY

WO 2004/087573 A1